FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

Please fill in the highlighted areas
all sections (IA, IB, IC, etc.) must be addressed or the application will be considered invalid

I. APPLICANT INFORMATION

A. Applicant Name: Montana Fish, Wildlife and Parks

B. Mailing Address: 2165 HWY 2 East

C. City: Havre State: MT Zip: 59501

Telephone: 406-265-6177 x226 E-mail: cnagel@mt.gov

D. Contact Person: Cody Nagel (MTFWP)

Address if different from Applicant:

City: Havre State: MT Zip: 59501

Telephone: 265-6177 x226 E-mail: cnagel@mt.gov

E. Landowner and/or Lessee Name (if other than Applicant): US Department of the Interior, Bureau of Land Management (BLM), North Central Montana District, Havre Field Office

Mailing Address: 3990 US Highway 2 West

City: Havre State: MT Zip: 59501

Telephone: 406-262-2820 E-mail:

II. PROJECT INFORMATION*

A. Project Name: Reser Reservoir Dam Reconstruction and Fish Habitat Improvement

River, stream, or lake: Reservoir

Location: Township: 34N Range: 18E Section: 8
Latitude: 48.71597 Longitude: -109.39833 *within project (decimal degrees)*

County: Blaine County

B. Purpose of Project:

Reser Reservoir's dam failed in the spring of 2018 due to excessive runoff. The reservoir is currently drawn down approximately 20 feet and the BLM anticipate repairing the dam in 2020. The repairs include: replacing outlet, spillway tower and low-level inlet, and complete reconstruction on the dam face. The failure of the dam has created an opportunity to increase the amount of available fish habitat in Reser. Equipment will be onsite during the dam reconstruction and will provide a cost-effective approach to increase the fish habitat within Reser Reservoir.

C. Brief Project Description:

Reser Reservoir is a 25-surface acre reservoir located on BLM lands in Blaine County. The reservoir has been managed as public fishery since 1982. The primary fish species that have been managed in Reser include: rainbow trout, bluegill, black crappie, yellow perch, channel catfish and largemouth bass. The project will re-establish the dam's integrity and provide a sustainable water source containing depths adequate for a self-sustaining fishery (>25 feet), as well as suitable summer and winter refuge for all species. The habitat component of the project will increase the amount of available habitat for several species at various life stages.

The dam reconstruction will consist of replacing the existing outlet, spillway tower, low-level inlet and outlet conduit. The dam will also be reconstructed with new drain gravel, filter sand, stabilization fabric, lime backfill, compaction and salvage/add rip rap (See attachment "Reser Dam Reconstruction Schedule of Items").

The habitat enhancement component of the project will increase the amount of spawning and rearing habitat for largemouth bass, black crappie and bluegill. This will be accomplished by creating several large spawning beds at different locations. The "beds" will be comprised of small gravels and sand, the thickness of the beds will be approximately 12" (see attached map depicting habitat improvement locations). The beds will vary in size and will be developed on low gradient shorelines in 3-8' of water (at full pool elevations).

The project will also increase the amount of deep structure for larger adult fish. This will be accomplished by utilizing larger angular rock (2'-3') from stockpiles near the project site. These large rock piles and veins will be strategically placed at deeper depths (>10' at full pool elevations) and will vary in size and height. Other habitat structures such as rock veins and natural reefs (brush piles) will be considered and utilized (see attached map for proposed locations).

The proposed habitat enhancement project will run consecutively with the BLM's dam reconstruction project to utilize the equipment that will be onsite and decrease the overall cost.

D. Length of stream or size of lake that will be treated: ~ 3 acres

E. Project Budget:

Grant Request (Dollars): $ 40,000

Contribution by Applicant (Dollars): $ 0 In-kind $ 0

(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): $ 1,101,049.00 In-kind $ 0

(attach verification - See page 2 budget template)

Total Project Cost: $ 1,141,049.00 (estimate)

F. Attach itemized (line item) budget – see template

G. Attach **specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support and fish biologist support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete a *supplemental questionnaire*** (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. **Attach land management & maintenance plans that will ensure protection of the reclaimed area.**

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?:

The species that will benefit most from this project are largemouth bass, black crappie, bluegill and fathead minnows. The project would increase the amount of quality spawning habitat available for these species and would significantly contribute to self-sustaining population dynamics, as well as wild fish and forage production.

B. How will the project protect or enhance wild fish habitat?:

Reser Reservoir was built in 1980. As reservoirs age they lose a lot of the initial productivity that occurred when originally built, the loss of production is typically due to sedimentation. The proposed project will re-establish and revitalize this lost production and essentially extend the life of this reservoir. The project will increase the spawning habitat found in the reservoir and will increase overall production of the species previously mentioned.

The reconstruction of the dam will re-establish the historic sustainable water source that benefits wild fish as well as enhancing the overall spawning and rearing habitat found in Reser Reservoir.

C. Will the project improve fish populations and/or fishing? To what extent?:

This project will increase the amount of ideal spawning and rearing habitat and will result in better overall fish populations. The proposed spawning habitat will be beneficial to multiple species and will create a dynamic fish community that will encourage favorable wild forage production as well as natural reproduction of game fish.

The project site is located within 15 miles of Havre and Chinook, having a combined overall population approaching 13,000 residents. Reser is a publicly accessible fishery located on BLM land and has been managed as a fishery by MTFWP for almost 40 years. The proposed project will increase habitat that's beneficial to fish and other aquatic species. However, a secondary benefit is that this habitat will be accessible to angling and some of these habitats will attract fish and increase angling success and overall trip experience.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

Fishing access to Reser Reservoir has been excellent for almost 40 years. The project will increase wild fish production and will increase the overall aquatic production within Reser Reservoir, that had been lost due to reservoir aging and the dam failure.

The project aims to re-establish a valuable recreational fishery by reconstructing the dam, ensuring this reservoir remains available to fishing access for decades. The habitat enhancement portion of the project will increase fish production as well as provide areas where fish may concentrate and be easily accessible to anglers. In addition, two access trails and a public boat ramp will be constructed to increase angler access during both open-water and winter months.

E. The project agreement includes a 20-year maintenance commitment. Please discuss your ability to meet this commitment.

The project site will be closely monitored by the BLM and MTFWP personnel. If future maintenance is required at the project site, both the BLM and MTFWP personnel will be completely committed to ensure any problems are fixed and/or maintained.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

Failure of the dam and reservoir aging are the primary cause of habitat degradation at this site, especially in the littoral zones (3-8' water depths). Siltation rates are low, however the area in which this reservoir was created doesn't contain a lot of small gravel/sand habitats that increase spawning success. Some large rock does occur, but at low amounts.

The project will re-establish the integrity of the dam and significantly increase the amount of available spawning and rearing habitat. Areas for habitat enhancement at Reser were strategically picked based on bank slope, adjacent shoreline habitat, wind/wave protection, and depths at full pool elevations.

G. What public benefits will be realized from this project?:

The proximity of Reser Reservoir to both Havre and Chinook creates a resource that has been historically utilized by both communities. Reser Reservoir is also publicly promoted through various fishing guides/pamphlets by MTFWP (R6 Pond Book) and the BLM (recreation guide). The project will increase aquatic production and diversity at Reser and anglers will immediately notice the new dam, habitat, and access improvements proposed with this project.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No, this reservoir is a publicly managed fishery.

J. Is this project associated with the reclamation of past mining activity?:

No

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Cody Nagel Date: 11-4-2019

Sponsor (if applicable): _____

***Highlighted boxes will automatically expand.**

Mail To: Montana Fish, Wildlife & Parks
Fisheries Division
PO Box 200701
Helena, MT 59620-0701

E-mail To: Michelle McGree
mmcgree@mt.gov
(electronic submissions MUST be signed)

Incomplete or late applications will be rejected and returned to applicant.
Applications may be rejected if this form is modified.

*****Applications must be signed and *received* by the Future Fisheries Program Officer in Helena *before* December 1 and June 1 of each year to be considered for the subsequent funding period.*****

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Both tables must be completed or the application will be returned

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES**	IN-KIND CASH	TOTAL
Personnel* **								
Survey				$ -				$ -
Design				$ -				$ -
Engineering				$ -				$ -
Permitting				$ -				$ -
Oversight				$ -				$ -
				$ -				$ -
			Sub-Total	$ -	$ -	$ -	$ -	$ -
Travel								
Mileage				$ -				$ -
Per diem				$ -				$ -
			Sub-Total	$ -	$ -	$ -	$ -	$ -
Construction Materials** **								
Filter Sand	556	CY	$99.00	$ 55,044.00			55,044.00	$ 55,044.00
Drain Gravel	182	CY	$104.00	$ 18,928.00			18,928.00	$ 18,928.00
Road Gravel	232	Ton	$40.00	$ 9,280.00			9,280.00	$ 9,280.00
New Riprap Slope Protection	1,252	Ton	$45.00	$ 56,340.00			56,340.00	$ 56,340.00
Riprap Bedding	2,830	Ton	$50.00	$ 141,500.00			141,500.00	$ 141,500.00
Stabilization Fabric	500	SY	$2.50	$ 1,250.00			1,250.00	$ 1,250.00
Spawning Bed Gravel	500	CY	$80.00	$ 40,000.00	40,000.00			$ 40,000.00
Rock for Piles and Veins	401	Ton	$45.00	$ 18,045.00			18,045.00	$ 18,045.00
Channel Excavation	300	CY	$6.00	$ 1,800.00			1,800.00	$ 1,800.00
			Sub-Total	$ 342,187.00	$ 40,000.00	$ -	$ 302,187.00	$ 342,187.00
Equipment and Labor								
Topsoil stripping & Replacement	1	LS	$10,500.00	$ 10,500.00			10,500.00	$ 10,500.00
Outlet Demolition	1	LS	$7,000.00	$ 7,000.00			7,000.00	$ 7,000.00
Common Excavation	18,121	CY	$4.00	$ 72,484.00			72,484.00	$ 72,484.00
Muck Excavation	1,500	CY	$10.00	$ 15,000.00			15,000.00	$ 15,000.00
Compacted Embankment	15,695	CY	$5.00	$ 78,475.00			78,475.00	$ 78,475.00
Lime amended backfill	2,494	CY	$40.00	$ 99,760.00			99,760.00	$ 99,760.00
Salvage and Replace Riprap	1	LS	$41,000.00	$ 41,000.00			41,000.00	$ 41,000.00

(Revised 11/6/2019)

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Riprap Outlet Basin	1	LS	$60,000.00	$ 60,000.00			60,000.00	$ 60,000.00
Spillway Tower and Low-Level Inlet	1	LS	$132,000.00	$ 132,000.00			132,000.00	$ 132,000.00
Outlet Conduit	1	LS	$89,000.00	$ 89,000.00			89,000.00	$ 89,000.00
Water Control/Dewatering	1	LS	$15,000.00	$ 15,000.00			15,000.00	$ 15,000.00
Access Trails	1	LS	$6,000.00	$ 6,000.00			6,000.00	$ 6,000.00
Boat Ramp	1	LS	$10,000.00	$ 10,000.00			10,000.00	$ 10,000.00
Contingencies (5%)	1		$50,543.00	$ 50,543.00			50,543.00	$ 50,543.00
			Sub-Total	$ 686,762.00	$ -	$ -	$ 686,762.00	$ 686,762.00
Mobilization								
Mobilization and preparatory work (Dam Reconstruction)	1	LS	$108,300.00	$ 108,300.00			108,300.00	$ 108,300.00
Mobilization and preparatory work (Habitat)	1	LS	$3,800.00	$ 3,800.00			3,800.00	$ 3,800.00
				$ -				$ -
				$ -				$ -
			Sub-Total	$ 112,100.00	$ -	$ -	$ 112,100.00	$ 112,100.00
			TOTALS	$ 1,141,049.00	$ 40,000.00	$ -	$ 1,101,049.00	$ 1,141,049.00

OTHER REQUIREMENTS:

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used for calculations). Describe here or in text.

Reminder: Government salaries cannot be used as in-kind match

***The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications must include a minimum of two competitive bids for the cost of undertaking the project.

****The Review Panel recommends a maximum fencing cost of $1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.

MATCHING CONTRIBUTIONS (do not include requested funds)

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL	Secured? (Y/N)
Bureau of Land Management	$ -	$ 1,101,049.00	$ 1,101,049.00	Y
	$ -	$ -	$ -	
	$ -	$ -	$ -	

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ -	$ 1,101,049.00	$ 1,101,049.00	

RESER DAM RECONSTRUCTION
SCHEDULE OF ITEMS

Item No.	Description	Quantity*		Unit Price	Total Cost
1	Mobilization & Preparatory Work	1	LS		
2	Topsoil Stripping & Replacement	1	LS		
3	Outlet Demolition	1	LS		
4	Common Excavation	18,121	CY		
5	Muck Excavation	1,500	CY		
6	Compacted Embankment	15,695	CY		
7	Lime Amended Backfill	2,494	CY		
8	Filter Sand	556	CY		
9	Drain Gravel	182	CY		
10	Road Gravel	232	Ton		
11	Salvage and Replace Riprap	1	LS		
12	New Riprap Slope Protection	1,252	Ton		
13	Riprap Bedding	2,830	Ton		
14	Riprap Outlet Basin	1	LS		
15	Spillway Tower and Low-Level Inlet	1	LS		
16	Outlet Conduit	1	LS		
17	Stabilization Fabric	500	SY		
18	Water Control/Dewatering	1	LS		
				BASE SUBTOTAL BID	
101	Bid Alternate 1 - Mobilization & Preparatory Work	1	LS		
102	Bid Alternate 1 - Access Trails	1	LS		
103	Bid Alternate 1 - Boat Ramp	1	LS		
104	Bid Alternate 1 - Channel Excavation	300	CY		
105	Bid Alternate 1 - Spawning Bed Gravel	500	CY		
106	Bid Alternate 1 - Fish Structures	401	Ton		
				BID ALTERNATE 1 SUBTOTAL BID	

TOTAL BID PRICE (BASE + BID ALT 1)	
Total Bid (words):	

*Quantities are not guaranteed. Measurement and payment for each Bid Item is defined in Section 01150, Measurement and Payment.

BLM RESER DAM RECONSTRUCTION
ENGINEER'S COST ESTIMATE - 95% DESIGN - OCTOBER 2019

Item No.	Item Description	Quantity	Unit	Unit Price	Amount
1	Mobilization & Preparatory Work	1	LS	$108,300	$ 108,300.00
2	Topsoil Stripping & Replacement	1	LS	$10,500	$ 10,500.00
3	Outlet Demolition	1	LS	$7,000	$ 7,000.00
4	Common Excavation	18,121	CY	$4.00	$ 72,484.00
5	Muck Excavation	1,500	CY	$10	$ 15,000.00
6	Compacted Embankment	15,695	CY	$5	$ 78,475.00
7	Lime Amended Backfill	2,494	CY	$40	$ 99,760.00
8	Filter Sand	556	CY	$99	$ 55,044.00
9	Drain Gravel	182	CY	$104	$ 18,928.00
10	Road Gravel	232	Ton	$40	$ 9,280.00
11	Salvage and Replace Riprap	1	LS	$41,000	$ 41,000.00
12	New Riprap Slope Protection	1,252	Ton	$45	$ 56,340.00
13	Riprap Bedding	2,830	Ton	$50	$ 141,500.00
14	Riprap Outlet Basin	1	LS	$60,000	$ 60,000.00
15	Spillway Tower and Low-Level Inlet	1	LS	$132,000	$ 132,000.00
16	Outlet Conduit	1	LS	$89,000	$ 89,000.00
17	Stabilization Fabric	500	SY	$2.50	$ 1,250.00
18	Water Control/Dewatering	1	LS	$15,000	$ 15,000.00
	Contingencies (5%)				$50,543.00
				BASE SUBTOTAL	**$1,061,404.00**
101	Bid Alternate 1 - Mobilization & Preparatory Work	1	LS	$3,800	$ 3,800.00
102	Bid Alternate 1 - Access Trails	1	LS	$6,000	$ 6,000.00
103	Bid Alternate 1 - Boat Ramp	1	LS	$10,000	$ 10,000.00
104	Bid Alternate 1 - Channel Excavation	300	CY	$6	$ 1,800.00
105	Bid Alternate 1 - Spawning Bed Gravel	500	CY	$80	$ 40,000.00
106	Bid Alternate 1 - Fish Structures	401	Ton	$45	$ 18,045.00
				BID ALTERNATE 1 SUBTOTAL	**$ 79,645.00**
				TOTAL ESTIMATED COST	**$1,141,049.00**

1.05 MEASURED QUANTITIES:

A. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.

1. Measurement for payment of excavations upon or against which concrete or cementitious backfill is not to be placed will be limited to the lines and grades shown on the Drawings or to the most practical lines, grades, and dimensions established by the CO, in writing. No measurement will be made of over excavations beyond design lines and grades.
2. Fill quantities will be computed using the average-end-area method or other computation method approved of by the CO.

B. Measurement by Area: Measured by square dimension using mean length and width. Items that are measured by area will be measured parallel to the ground surface.

C. Linear Measurement: Measured by linear dimension at the item centerline or mean chord. Items that are measured by the lineal foot will be measured parallel to the ground surface, unless otherwise specified.

D. Stipulated Sum/Price Items: Measured by weight, volume, area, or linear means, or combination, as appropriate, as completed items or units of the work.

E. Lump-Sum Items: Will not be measured for payment. Interim measurements may be made to monitor work progress.

1.06 SCHEDULE OF VALUES:

A. A schedule of values or "allocation of contract price" is required for all lump sum items.

B. The schedule of values is used only to help assess the intermediate value of work completed for the purpose of making progress payments. The schedule of values is not considered as a commitment to prices in the event of later negotiations.

1.07 MEASUREMENT AND PAYMENT ITEMS:

A. Item 1 – Mobilization & Preparatory Work: Consists of preparatory work and operations performed by the CONTRACTOR, including but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings, and other facilities necessary for all work on the project; for premium on bonds and insurance for the Contract; and for other work and operations that must be performed or costs incurred before beginning work on the various items on the project site.

1. This item also includes constructing and maintaining detour road(s) and traffic control devices as necessary to provide public access through the project site on the BLM Lands Road year-round and for the duration of the project.
2. Mobilization costs for subcontracted work are also considered included.
3. Demolition and disposal of all existing structures designated for removal in the Contract Documents but not specifically included in other payment items are included in this

payment item.

4. Measurement and payment for mobilization and preparatory work will be made at the Contract lump sum price. Progress payments for mobilization and preparatory work will be as follows:

   a. When 5 percent of the total original Contract amount is earned from other Contract items, 50 percent of the amount bid for mobilization will be included in the progress payment estimate.

   b. When 40 percent of the total original Contract amount is earned from other schedule items, the balance of the amount bid for mobilization and preparatory work will be included in the progress payment estimate.

B. Item 2 – Topsoil Stripping & Replacement: Consists of stripping, stockpiling and replacing topsoil from all staging, borrow, excavation, embankment, and waste areas. Seeding will be completed by Others. Topsoil stripping and replacement will be measured and paid at the Contract lump sum price. Removal of woody vegetation and trees from the embankment and auxiliary spillway are considered incidental to this item.

C. Item 3 – Outlet Demolition: Includes removal of existing CSP outlet pipes and risers and gabion outlet basin. This item includes removal of pipes, concrete headwalls, concrete cutoff collars, miscellaneous concrete, wire, rock, debris; protection of existing materials not designated for removal; legal disposal at off-site facilities; removal of loose material and all cleaning necessary or incidental to demolition. Measurement will be based on acceptable demolition, cleanup and removal. Payment will be made at the Contract lump sum price.

D. Item 4 – Common Excavation: Consists of excavation and stockpiling or wasting as necessary to construct work in accordance with the Contract Documents. Excavation areas include outlet works area. The quantity measured for payment will be to the defined neat-lines or as otherwise directed by the CO. Unauthorized over-excavation will not be included in measurement for this item. Waste of materials from excavation areas that are unsuitable for embankment placement is included in this item. Payment for this work will be made at the Contract unit price per cubic yard.

E. Item 5 – Muck Excavation: (Field Measured). Consists of excavation and wasting, as necessary, to remove muck (saturated soil) from the area of the existing principal spillway inlet, outlet, dam foundation and the area of the construction of the riprap outlet basin. Wasting will be in areas as directed by the CO. Payment for this work will be made at the Contract unit price per cubic yard.

F. Item 6 – Compacted Embankment: Consists of loading from stockpiles or excavating from borrow areas, hauling, placing and compacting embankment in accordance with the Contract Documents. Embankment areas include outlet works areas. Excavation and backfill for examination test pits is considered incidental to the price of this item. The quantity measured for payment will be to the defined neat-lines or as otherwise directed by the CO. Embankment placed to compensate for unauthorized over-excavation will not be included in measurement for this item. Payment will be made at the Contract unit price per cubic yard.

G. Item 7 – Lime Amended Backfill: Consists of furnishing hydrated lime, hauling, mixing lime with soil, water conditioning, placing, and compacting the lime treated soil in accordance with the Contract Documents. The quantity measured for payment will be computed using the neat line dimensions shown on the Drawings. Payment for this work will be made at the Contract unit price per cubic yard.

H. Item 8 – Filter Sand: Consists of furnishing and placing filter sand material in accordance with the Contract Documents. The quantity measured for payment will be computed using the neat line dimensions shown on the plans. Payment for this work will be made at the Contract unit price per cubic yard

I. Item 9 – Drain Gravel: Consists of furnishing and placing drain gravel material in accordance with the Contract Documents. The quantity measured for payment will be computed using the neat line dimensions shown on the Drawings. Payment for this work will be made at the Contract unit price per cubic yard.

J. Item 10 – Road Gravel: Consists of furnishing and placing road gravel material in accordance with the Contract Documents. Supplying and installing geotextile filter fabric between the road gravel and subgrade is considered incidental to this item. The quantity measured for payment will be computed using the neat line dimensions shown on the Drawings. Payment for this work will be made at the Contract unit price per ton.

K. Item 11 – Salvage and Replace Riprap: Consists of removing, stockpiling, and replacing the existing rock riprap on the upstream dam face. The amount of existing riprap is estimated at approximately 1,000 cubic yards. Measurement and payment for this work will be made at the Contract lump sum price.

L. Item 12 – New Riprap Slope Protection: Consists of supplying from offsite sources and placing riprap on the upstream face in accordance with the Contract Documents. Measurement will be computed using the neat line dimensions shown on the Drawings. Payment for this work will be made at the Contract unit price per ton.

M. Item 13 – Riprap Bedding: Consists of installation of riprap bedding material below the riprap at locations on the upstream dam face. Principal work activities associated with this bid item include, but are not limited to furnishing riprap bedding from an off-site source, material handling, stockpiling, and transporting riprap bedding, and placing riprap bedding. Supplying and installing geotextile filter fabric between riprap bedding and subgrade is considered incidental to this item. Measurement volume based on drawing neat lines and on surveyed volumes approved by the CO. Payment for this work will be at the Contract unit price per ton.

N. Item 14 – Riprap Outlet Basin: Item includes furnishing and placing rock riprap material from an offsite source and furnishing and placing grout in accordance with the Contract Documents. PVC and steel pipes for drain weeps, HDPE pipe for dewatering sumps, and geotextile fabric associated with the outlet basin are considered incidental to this item. Excavation and compacted embankment to construct the basin are not included in this item and will be paid separately. Measurement and payment will be made at the Contract lump sum price.

O. Item 15 – Spillway Tower and Low-Level Inlet: The Spillway Tower consists of providing all materials for construction of the concrete spillway tower structure. Item includes precast concrete manhole sections, stainless steel vent pipe, nonshrink grout for vent pipe encasement, lean concrete slab, concrete bedding around foundation, structural concrete floor, fabricated trash rack, and all other items necessary to construct the Spillway Tower and Low-Level Inlet Structure in accordance with the Contract Documents.

The Low-level Inlet consists of constructing a concrete inlet structure with trashrack and new slide gate, gate stem, concrete gate pedestal structure, concrete gate stem encasement, steel staff gage with welded markings, and all associated appurtenances in accordance with the Contract

Documents. This item also consists of furnishing and installing High Density Polyethylene (HDPE) pipe between inlet structure and spillway tower in accordance with the Contract Documents. Trench excavation for the inlet conduit and providing and placing concrete bedding, and lean concrete cap to encase the HDPE pipe are also included in this item.

Excavation and backfill will be measured and paid for separately under other items of work. Measurement and payment will be made at the Contract lump sum price.

P. Item 16 – Outlet Conduit: Consists of furnishing and installing precast reinforced concrete pipe outlet conduit in accordance with the Contract Documents. This item includes outlet trench excavation through Compacted Embankment, pipe support blocks, reinforced concrete pipe, flap gate, steel reinforcing bars, and providing and placing concrete bedding and lean concrete cap. Compacted Embankment around the outlet is not included in this item and will be paid separately. Measurement and payment will be made at the Contract lump sum price.

Q. Item 17 – Stabilization Fabric: (Field Measured). Consists of furnishing and installing geotextile stabilization fabric in accordance with the Contract Documents in areas directed by the CO. Payment for this work will be made at the Contract unit price per square yard as measured and accepted in-place, excluding overlaps and anchoring.

R. Item 18 – Water Control/Dewatering: Consists of dewatering the reservoir and other water control measures necessary to complete the Work in accordance with the Contract Documents. Includes all design, equipment, facilities (including, but not limited to pumps, hoses, trenches, dikes, wells, sediment control), and operation required to maintain excavations and work areas free from water. This item also includes removal of dewatering facilities upon completion of construction. The CONTRACTOR is responsible to design and maintain all construction water control features to prevent damage to the Work. Measurement and payment will be made, subject to acceptable construction progress, based on the Contract lump sum price for this item, prorated in equal monthly amounts throughout the construction schedule.

S. Item 101 – Bid Alternate 1 – Mobilization & Preparatory Work: Consists of preparatory work and operations performed by the CONTRACTOR, related to the Fishery Enhancements, including but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for premium on bonds and insurance for the Contract; and for other work and operations that must be performed or costs incurred before beginning work on the Fishery Enhancements item on the project site.

1. Mobilization costs for subcontracted work are also considered included.
2. Measurement and payment for mobilization and preparatory work will be made at the Contract lump sum price. Progress payments for mobilization and preparatory work will be as follows:
    a. When 5 percent of the total original Contract amount is earned from other Contract items, 50 percent of the amount bid for mobilization will be included in the progress payment estimate.
    b. When 40 percent of the total original Contract amount is earned from other schedule items, the balance of the amount bid for mobilization and preparatory work will be included in the progress payment estimate.

T. Item 102 – Bid Alternate 1 – Access Trails: Consists of excavation, grading, and fill to construct

two access trails in accordance with the Contract Documents. Measurement and payment for this work will be made at the Contract lump sum price.

U. Item 103 – Bid Alternate 1 – Boat Ramp: Consists of excavation, compaction, grading, providing and placing road gravel and boulders, and providing and installing fabricated concrete block matting associated with construction of a boat ramp in accordance with the Contract Documents. Measurement and payment for this work will be made at the Contract lump sum price.

V. Item 104 – Bid Alternate 1 – Channel Excavation: Consists of excavation and to construct work in accordance with the Contract Documents. The excavation area is adjacent to the historic dam. The quantity measured for payment will be based on the drawing dimensions and on field measured volumes approved by the CO. Unauthorized over-excavation will not be included in measurement for this item. Waste of materials from excavation areas that are unsuitable for embankment placement is included in this item. Payment for this work will be made at the Contract unit price per cubic yard.

W. Item 105 – Bid Alternate 1 – Spawning Bed Gravel: Consists of furnishing and placing spawning bed gravel material in the reservoir in accordance with the Contract Documents. The quantity measured for payment will be based on the drawing dimensions and on field measured volumes approved by the CO. Payment for this work will be made at the Contract unit price per cubic yard

X. Item 106 – Bid Alternate 1 – Fish Structures: Consists of supplying from offsite sources and placing fish structure rock in the reservoir in accordance with the Contract Documents. The quantity measured for payment will be based on the drawing dimensions and on field measured volumes approved by the CO. Payment for this work will be made at the Contract unit price per ton.

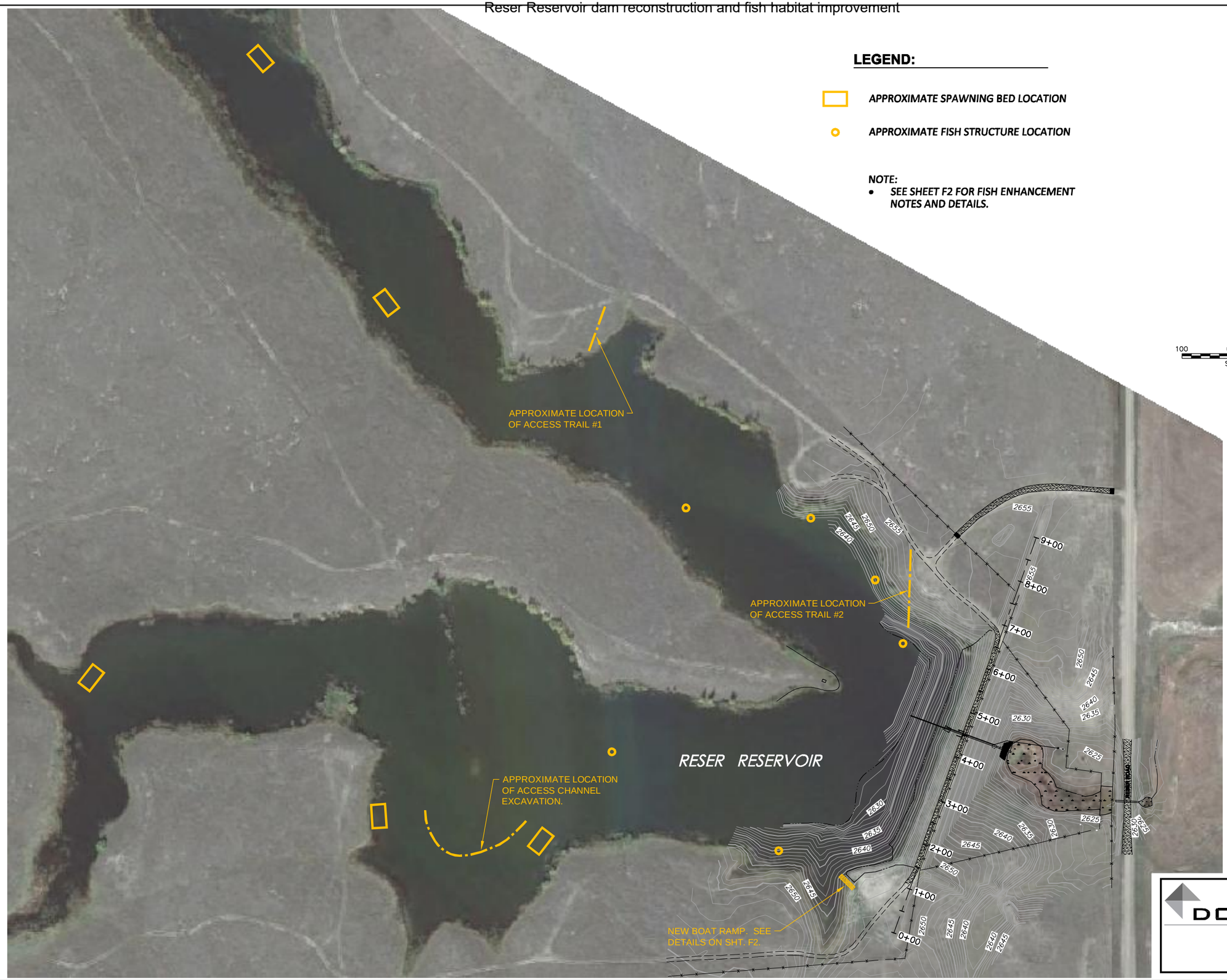
PART 2 - PRODUCTS – NONE

Not Used.

PART 3 - EXECUTION – NONE

Not Used.

END OF SECTION 01150



LEGEND:

- *APPROXIMATE SPAWNING BED LOCATION*
- *APPROXIMATE FISH STRUCTURE LOCATION*

NOTE:

- ***SEE SHEET F2 FOR FISH ENHANCEMENT NOTES AND DETAILS.***

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SCALE IN FEET

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BUREAU OF LAND MANAGEMENT

FISH ENHANCEMENT FEATURES
SITE PLAN
RESER DAM RECONSTRUCTION

MONTANA

HAVRE

	MARK	REVISION	DATE	APPROVED

AUTOCAD NAME: SC-CS_BLM_21709-01_SP.dwg
DESIGN OFFICE: DOWL
DESIGNED BY: JLC DATE: 10-14-19
DRAWN BY: TFG DATE: 10-14-19
CHECKED BY: JLC DATE: 10-14-19
APPROVED BY: JHT DATE: 10-14-19

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SHEET 27 OF 28

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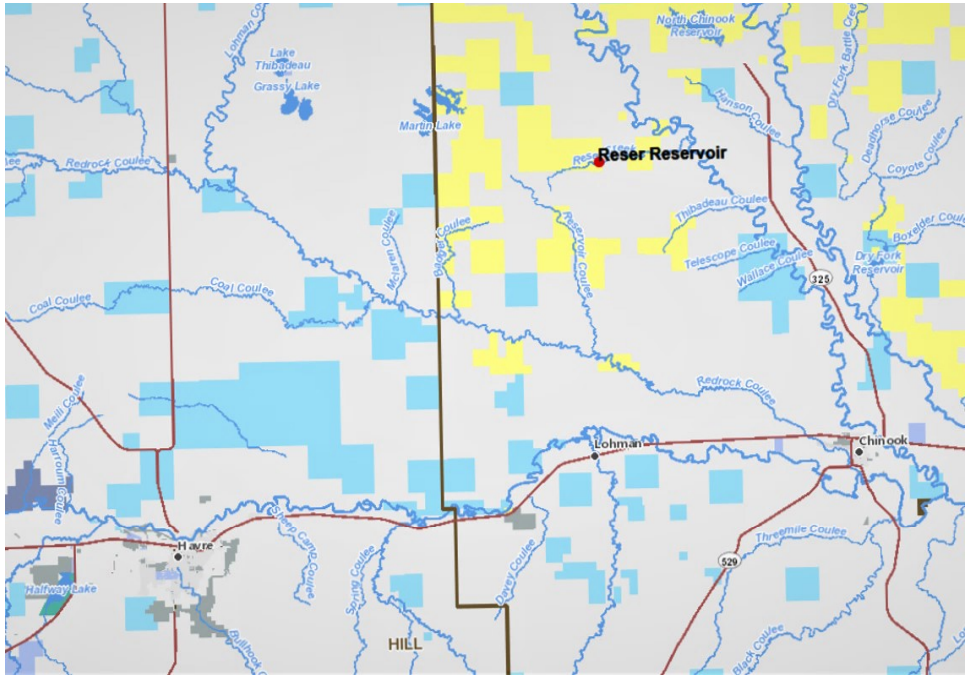
Reser Reservoir dam reconstruction and fish habitat improvement

Reser Reservoir dam reconstruction and fish habitat improvement



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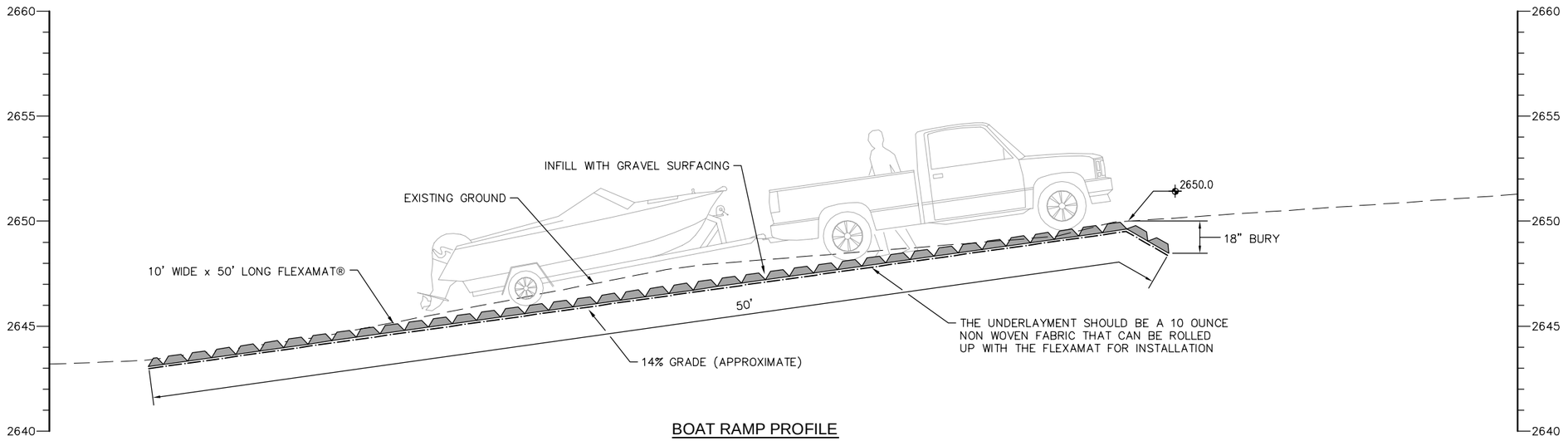


BOAT RAMP PROFILE

Material Specifications

- Boat Ramp Concrete Blocks - Use a fabricated concrete block mat for the boat ramp surfacing. The concrete block mat shall be Flexamat or approved equal. Use nonwoven geotextile fabric for the block underlayment. Submit concrete block mat data and shop drawings for approval.
- Spawning Bed Gravel - Provide gravel materials from off-site sources consisting of reasonably well-graded sand and gravel blend conforming to the gradation listed below. Submit gravel source and gradation testing for approval.

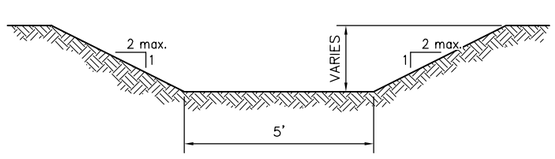
Spawning Bed Gravel Gradation	
Sieve Size	Percent Smaller By Weight
3/4 inch	90-100
3/8 inch	50-75
No. 4	30-65
No. 8	25-55
No. 16	20-40
No. 30	15-35
No. 100	0-10

Fish Structure Rock - Boulders provided from an offsite source shall be dense, angular, sound rock fragments resistant to abrasion, free of cracks, seams, clay, organic material and defects that would hasten degradation by water and/or frost action. Furnish stone conforming to the property specifications in Section 02275 and to the gradation listed below. Submit rock source and test results for approval.

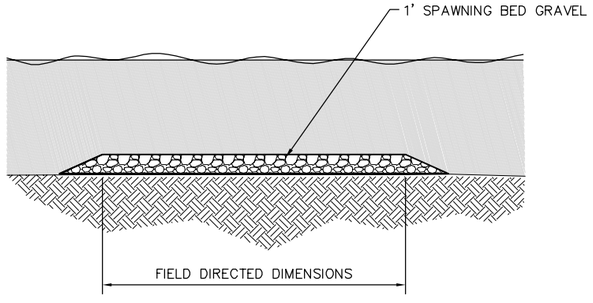
Fish Structure Rock Gradation	
Diameter	Percent Smaller By Weight
3 feet	100
2 feet	0-10

General Construction Notes

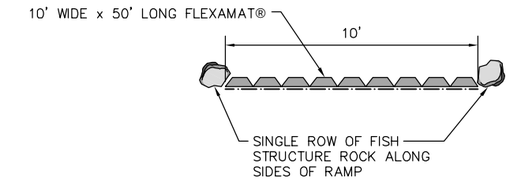
- Spawning beds - Bed locations and dimensions are to be field directed. The spawning bed subgrade shall be compacted. Perform the subgrade compaction with four passes of a loaded wheel loader or approved alternate method. Place and spread gravel to a finished thickness of 1 foot. Do not compact spawning bed gravel.
- Fish structures - Rock pile locations and dimensions to be field directed. Fish structures will generally consist of fish structure rock placed in an approximate 10-foot diameter by 3-foot high cone shape.
- Boat ramp - The boat ramp location to be field directed. Over-excavate boat ramp subgrade 6 inches and compact with four passes of a loaded wheel loader or approved alternate method. Infill between boat ramp blocks with road gravel.
- Access Channel Excavation - The location of the access channel excavation through the right side of the original dam will be field directed. Excavation location is approximately 800 feet northwest of CP-3. Assumed excavation dimensions are 300-feet long, 5-feet wide, and 5-feet deep with maximum side slopes of 2H:1V.
- Access Trails - Access trail locations to be field directed. Maximum slope of access trails will be 10%-15% between elevations 2655 and 2635. Trail width is to be 4 feet to 5 feet. Maximum allowable excavation side slopes are 2H:1V.



ACCESS CHANNEL EXCAVATION TYPICAL SECTION



TYPICAL GRAVEL SPAWNING BED



BOAT RAMP SECTION

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FISH ENHANCEMENT FEATURE DETAILS
BOAT RAMP AND
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SHEET 28 OF 28

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